

Tualatin Basin Goal 5

Program Implementation Report

Steering Committee Recommended Draft

Issue Paper #2:

Implementation Recommendations to Encourage Habitat Friendly Development Practices

Prepared for:

Tualatin Basin Steering Committee

Prepared by:



May 2, 2006

Implementation Recommendations to Develop and Encourage Habitat Friendly Development Practices

Table of Contents

A. Introduction

1. Background
2. Purpose
3. Summary of Approaches and Methods

B. Implementation Recommendations for Development Sites with Habitat

1. Encouragement through Flexibility
2. Defining Habitat Areas
3. Establishing a Habitat Benefit
4. Guidelines for Local Jurisdictions
 - Process
 - Land Divisions
 - Site Design
 - Parking
 - Landscaping/Hardscape Design
 - Street design
 - Stream crossing and street connectivity standards

C. Implementation Recommendations for Basin-Wide Approaches

1. Guidelines for Local Jurisdictions
 - Shared driveways and parking areas
 - Increased use of pervious materials/Use pervious paving materials
 - Increased use of native plant/Preservation of existing trees and maximize forest canopy
 - Improved soil amendment
 - Maximize street tree usage
 - Use multi-functional open drainage systems/vegetated stormwater management facilities/modify drainage practices
 - Detention ponds/Underground detention and/or treatment
 - Encourage Green roofs (eco-roofs)
 - Disconnect downspouts/Use rain barrel or cistern system
 - Methods Not Recommended for Basin-wide Implementation at this time

Appendix A – Sample Delineation Methodology (from Metro’s Model Ordinance)

Appendix B – Illustration of Habitat Benefit Area

A. INTRODUCTION

1. *Background*

On September 29, 2005 the Metro Council voted to approve a regional Nature in Neighborhoods (Goal 5) program. This council action incorporated the *Tualatin Basin Fish & Wildlife Habitat Program*, as developed and recommended by the Tualatin Basin Partners for Natural Places (Partners). Under an intergovernmental agreement between the Partners and Metro, applicable elements of the adopted Basin program must be implemented within one year following the Metro Council's final decision (or within 60 days of LCDC's acknowledgement of Metro's Functional Plan provisions, whichever is later).

Applicable elements included compliance with the six steps identified in Section B of Chapter 7 of the *Tualatin Basin Fish & Wildlife Habitat Program*. One of these steps is the development of a model Low Impact-Development (LID) ordinance for the basin, which would provide tools designed to reduce environmental impacts of new development and removing barriers to their utilization. This step includes local adoption of LID guidelines. In addition, Basin jurisdictions must adopt provisions that facilitate and encourage the use of habitat-friendly development practices, where technically feasible and appropriate, in all areas identified as Class I and II riparian habitat areas.

An important feature of the Basin program is the encouragement of land developers and property owners to incorporate habitat friendly practices in their site design. *Habitat friendly development practices* include a broad range of development techniques and activities that reduce the detrimental impact on fish and wildlife habitat relative to traditional development practices. While the phrases are sometimes used interchangeably, for the purposes of this paper *low impact development*, which is more specifically focused on minimizing hydrologic impacts, e.g., reducing *effective impervious area (ELA)* and improving water quality, is considered a subset of habitat friendly practices.

2. *Purpose*

This paper has been prepared by Angelo Eaton & Associates on behalf of the Tualatin Basin Steering Committee (TBSC) as part of the *Tualatin Basin Fish & Wildlife Habitat Program*. As part of Basin Program, a compliance report is being prepared to document the process, methods, and results of the program implementation work. As a first step, Issue Paper #1 (draft dated February 24, 2006) identified those approaches and methods which could be successfully used within the Tualatin Basin to develop and encourage habitat friendly development practices.

Issue Paper #2 suggests code concepts that could be included in local comprehensive plans and development codes in order to implement and encourage those habitat friendly practices recommended for the Basin in Issue Paper #1. These concepts include addressing typical barriers

to habitat friendly development, as well as those that may preclude the implementation of low impact development techniques being considered by Clean Water Services (CWS) as acceptable methods of on-site stormwater management. Issue Paper #2 is intended to assist in the development of local program implementation ordinances. Each Basin jurisdiction is responsible for drafting and adopting local comprehensive plan and/or development code amendments necessary for implementation of habitat friendly practices. Because most of the Basin jurisdictions already implement some practices which reduce the detrimental impact of development on fish and wildlife, all of the suggested changes may not be necessary in all cases. In these cases, Basin jurisdictions will document current practices.

Fully implementing the recommended approaches and methods outlined in Issue Paper #1 will raise significant policy issues. For example, allowing density transfer by right may facilitate resource protection, but may upset neighboring property owners and lessen public involvement (in a sense, creating a conflict between Statewide Planning Goal 1 and Goal 5). Resolving these issues will require policy “trade-offs.” The implementation discussion in Issue Paper #2 is meant to identify those provisions that facilitate and encourage the use of habitat-friendly development practices for the benefit of Goal 5 resources. In considering these implementation concepts, each of the Basin jurisdictions will have to determine which trade-offs it finds appropriate.

3. Summary of Approaches and Methods

As previously described in Issue Paper #1, some of the approaches and methods that can be used to encourage habitat friendly development could be effective anywhere within the basin (*including within or adjacent to habitat areas*); others are only recommended for areas within or adjacent to habitat areas. This distinction becomes particularly important in terms of implementation. In some cases, a method may be effective in both situations. For example, reducing parking space requirements basin-wide may help reduce Effective Impervious Area (EIA), if the “saved” area is used for landscaping or to retain existing vegetation. Alternatively, if the concept were only applied on a more limited basis to those sites which contain Goal 5 resources, it could help create the flexibility needed to protect the resource while allowing development of the site.

In addition, some of the approaches and methods recommended in Issue Paper #1 will have limited applicability in the Basin due to soil conditions. As noted in Issue Paper #1, a review of the SCS (NRCS) *Soil Survey of Washington County - Table 8* shows all but three soils types in the Basin to be listed with “restrictive soil features”. These soils are not necessarily impervious, but may be very slow draining. Those approaches and methods which are listed as “soil limited” will require soil amendments or other engineering solutions to offset the permeability issue when located on these soils. Finally, full implementation of some methods is dependent on adoption of technical design specifications. CWS has developed, or will be developing, technical specifications for some

- Tualatin Basin Goal 5 Program Implementation Report: Issue Paper #2 (TBSC Draft)
- Page 3

approaches. In other cases, the input of the Basin jurisdictions' building officials or engineers will be required. Metro may also be able to assist in the development of technical design specifications.

The table below summarizes the approaches and methods recommended in Issue Paper #1 and notes whether they are applicable basin-wide or only on sites that include habitat. In addition, the table notes whether they are limited or constrained in applicability by soil conditions. It also identifies those methods that will require technical specifications to be developed in order to be fully implemented.

Table 1: Applicability of Approaches and Methods from Issue Paper #1

Approaches and Methods from Issue Paper #1	Sites w/ Habitat	Basin- Wide	Soil Limited	Design Specs
Planning and development approaches				
1) <i>Land Division Design</i>				
o Clustering/lot size averaging, on-site density transfers	X			
2) <i>Site Design</i>				
o Increased flexibility for setbacks	X			
o Increased flexibility for lot coverage	X			
o Increased flexibility for building heights	X	x*		
3) <i>Parking Design</i>				
o Reduced parking ratios	X	x*		
o Shared driveways and parking areas		X		
o Flexibility in parking lot landscaping / Additional parking lot landscaping	X			
o Smaller car spaces and stall dimensions	X	x*		
o Increased use of pervious materials		X	X	X
4) <i>Landscaping/Hardscape Design</i>				
o Locating landscaping adjacent to habitat areas	X			
o Increased use of native plant	X	X		
o Improved soil amendment		X		X
o Reduction of non-ADA sidewalks within a site	X	x*		
o Increased use of habitat-friendly fencing	X			
o Preservation of existing trees and maximize forest canopy	X	X		
5) <i>Lighting Design</i>				
o Re-directed outdoor lighting, reducing light spill-off	X			
6) <i>Density Reduction for Regionally Significant Habitat</i>				
o Modified definition of net buildable areas	X			
o Reduced minimum buildable lot sizes	X			
Engineering and Design Approaches				
1) <i>Street design</i>				
o Minimize paving	X	x*		

- Tualatin Basin Goal 5 Program Implementation Report: Issue Paper #2 (TBSC Draft)
- Page 4

Approaches and Methods from Issue Paper #1	Sites w/ Habitat	Basin- Wide	Soil Limited	Design Specs
○ Use pervious paving materials		X	X	X
○ Maximize street tree usage		X		
○ Use multi-functional open drainage systems / modify drainage practices		X	X	X
<i>2) Stream crossing and street connectivity standards</i>				
○ Minimize the number of stream crossings/place crossings perpendicular	X	x		X
○ Allow narrow paved widths through stream corridors	X	x		
○ Use habitat sensitive bridge and culvert designs	X	x		X
<i>3) Stormwater management facility design</i>				
○ Use vegetated stormwater management facilities		X	X	X
○ Use detention ponds		X		X
○ Use of underground detention and/or treatment		X		X
Building Design Solutions				
○ Encourage Green roofs (eco-roofs)		X		X
○ Disconnect downspouts		X	X	X
○ Use rain barrel or cistern system		X		X
* The encouragement of these methods basin-wide, above and beyond current practices, may not be practicable or may have conflicts with other policy considerations. The primary recommendation is for consideration within or adjacent to habitat areas at this time.				

B. IMPLEMENTATION RECOMMENDATIONS FOR DEVELOPMENT SITES WITH HABITAT

1. Encouragement through Flexibility

Pursuant to the intergovernmental agreement with Metro, Basin jurisdictions must adopt provisions that facilitate and encourage the use of habitat-friendly development practices, where technically feasible and appropriate, in all areas identified as Class I and II riparian habitat areas. Jurisdictions may also choose to encourage habitat-friendly development practices in other habitat areas including Class III riparian areas and Class A uplands. For development sites that include Class I and II riparian habitat areas (and other habitat types), providing increased flexibility in the development standards for projects that use habitat-friendly development techniques is one way of facilitating and encouraging habitat protection.

As proposed, the approach is intended to convey a benefit to the developer in exchange for the use of habitat-friendly development practices. It is not intended to increase development restrictions. Use of the standards would be at the option of the developer/property owner.

2. Defining Habitat Areas

The general location of Habitat Benefit Areas is indicated on Metro's Regionally Significant Fish and Wildlife Habitat Inventory Map (or Habitat Conservation Areas Map), and Basin jurisdictions may wish to include a reference to the map as a source document. However, the standards should be applied based on the definition of habitat and delineation methodologies (see example in Appendix A). Because use of these standards is optional and conveys a benefit to the property owner, delineation of the habitat area and its buffer is not likely to be a major issue.

3. Establishing a Habitat Benefit

Given the policy trade-offs that are necessary for implementation of these standards, the public should be assured of a reciprocal habitat benefit. The advantages should only be available to projects that provide habitat benefits above and beyond what is otherwise required by current regulations (e.g., CWS D&C standards, Division of State Lands). Only qualified "Habitat Benefit Areas" would be allowed to take advantage of the flexibility offered by the standards. Table 2, below, outlines some suggested minimum criteria for qualifying Habitat Benefit Areas.

Table 2:
Suggested minimum criteria for qualifying Habitat Benefit Areas

Resource Type	Requirements for Habitat Benefit Areas
Class I riparian habitat area	<ul style="list-style-type: none"> ▪ Habitat and buffer areas must be placed in a non-buildable tract or protected with a restrictive easement. ▪ Restoration and enhancement of habitat and buffer areas required, including monitoring for a minimum of five years. Restoration and enhancement include, but are not limited to: <ul style="list-style-type: none"> ○ Revegetation of non-vegetated areas ○ Removal of non-native vegetation ○ Improved soil amendments ○ Preservation of existing trees and forest canopy ○ Planting native vegetation ○ Use of habitat-friendly fencing, if needed ○ Use of habitat friendly outdoor lighting design adjacent to buffer ▪ Buffer area must be adjacent to a protected habitat area ▪ As defined, the Habitat Benefit Area would be in addition to any areas required for natural resource protection by existing regulations.
Class II riparian habitat area	
Class III riparian habitat area	
Class A Upland habitat area	
Habitat buffer area	

4. Guidelines for Local Jurisdictions

Local jurisdictions should consider providing flexibility in their land development ordinances to encourage the protection of qualified Habitat Benefit Areas. Below are some suggested concepts to do so. Not all of the suggested concepts will be appropriate in every jurisdiction. Basin jurisdictions should review their codes using the concepts below as general guidelines. Individual jurisdictions may already meet or exceed some of these suggestions; in those cases, the jurisdiction should simply document current practices.

Process

- ◆ Discretionary processes represent increased time, money, and risk for the developer. Optimally, the standards to encourage the protection of habitat would be clear and objective, with no additional land use processes required to take advantage of them. Jurisdictions should evaluate their codes to determine if their review processes are appropriate to encourage the use of the standards. Some jurisdictions may wish to allow this flexibility only through their existing planned development processes. In that case, fees, approval criteria, open space dedications, and review processes for planned developments should be reviewed and minimized for sites with Habitat Benefit Areas.

Land Divisions

- ◆ On-site density transfers/lot size averaging – At a minimum, all jurisdictions should consider allowing all development potential to be transferred from a qualified Habitat Benefit Area to the remainder of the development site; provided that the transferred density shall not more than

double the density allowed on the buildable portion of the site. For development sites with split zoning, transfers should be permitted across zoning districts. NOTE: Most jurisdictions already allow some level of on-site transfer to protect resources. These should remain in place as this transfer would only apply to Habitat Benefit Areas and not those areas already protected by existing natural resource regulations (e.g., DSL/COE, CWS).

- ◆ Lot dimensional standards – Jurisdictions should consider allowing lot dimensional standards (width, depth, and frontage) to be reduced by up to 40%.
- ◆ Minimum density – Local jurisdictions should adopt procedures to allow a waiver of the minimum density requirements. These procedures would be used at the option of the subdivider and should only allow for a reduction in the minimum number of units required to be built based on the amount of area protected. This reduction would not be limited to only Habitat Benefit Areas, but could include all regionally significant habitat on the property that has been protected through a public dedication or restrictive covenant. Procedures should include a standard protocol for notifying Metro by Report to Metro by April 15 of every year of the impact of this provision. Jurisdictions should work with Metro to ensure that “lost” units are allocated back to the Basin.
- ◆ Net Acre –Alternatively, jurisdictions could amend their definitions of “net acre” or “buildable area” to exclude Habitat Benefit Areas (at the option of the developer). However, this may require an amendment to the Functional Plan (Section 3.07.1010) definition of “net acre” as the definition does not “net out” lands for which the local zoning code provides a density bonus or other mechanism which allows the transfer of the allowable density or use to another area or to development elsewhere on the same site.

Site Design

- ◆ Setbacks – Encouraging protection of Habitat Benefit Areas may require flexibility in terms of setbacks. Except for lot lines adjacent to property zoned single-family residential, jurisdictions should consider allowing the minimum building setback established by the base zone to be reduced to any distance between the base zone minimum and zero, unless this reduction conflicts with applicable fire or life safety requirements. Codes should also allow this level of flexibility for setbacks that are internal to new single family residential developments.
- ◆ Lot coverage - Smaller single family lots (and townhouse lots) created through density transfer may need increased lot coverage in order to be buildable. Jurisdictions should consider allowing lot coverage to be increased up to 80%, provided the square footage of the additional coverage doesn’t exceed the total square footage of the Habitat Benefit Area. NOTE: This will need to be established at the time of the land division.
- ◆ Building heights - Except for areas within 40 feet of property zoned single-family residential, jurisdictions should consider allowing an increase in the maximum building height established by

the base zone of up to 12 feet, unless this increase conflicts with applicable fire or life safety requirements.

Parking

- ◆ Shared parking and On-Street Parking Credit - Jurisdictions should review their codes to confirm that they encourage the use of shared parking and on-street parking credits as a means of reducing the amount of required on-site parking.
- ◆ Reduced parking ratios – For sites with Habitat Benefit Areas, jurisdictions should consider reducing parking ratios for non-residential development by up to 10%.
- ◆ Smaller car spaces and stall dimensions – For sites with Habitat Benefit Areas, jurisdictions should consider allowing up to 40% of the required parking spaces to be compact. Parking space dimensions may vary by jurisdiction; however, as a general guideline, DLCD's *Model Development Code & User's Guide for Small Cities* (Model Code) includes the following dimensions for 90° compact stall: width = 7' 6" and length = 15'. The suggested standard vehicle parking space is 8' 6" wide by 18' long (or 16' feet long, with not more than a 2' overhang).

Landscaping/Hardscape Design

- ◆ Flexibility in parking lot landscaping/Locating landscaping adjacent to habitat areas – For sites with Habitat Benefit Areas, jurisdictions should consider allowing a reduction of up to 15% of the required landscaping and/or parking lot landscaping square footage; provided that the square footage of landscaping reduction does not exceed the size of the Habitat Benefit Area. Jurisdictions should also consider allowing a commensurate reduction in their parking lot landscaping dimensional and spacing standards.
- ◆ Reduction of non-ADA sidewalks within a site – For sites with Habitat Benefit Areas, jurisdictions should consider creating an exception in their pedestrian connectivity standards that allows a reduction in the width of required sidewalks and pedestrian accessway to the minimum necessary to comply with the Americans with Disabilities Act.

Street design

- ◆ Minimize or allow alternative (pervious) paving – Jurisdictions should consider allowing reductions in required pavement (and sidewalk) width (and right-of-way dedications) for sites with Habitat Benefit Areas.

Stream crossing and street connectivity standards

[NOTE: Most stream crossings occur within Class I, II, or III riparian areas. Therefore, these guidelines are recommended for sites with habitat; however, they are also applicable in cases where stream crossings occur in areas not designated as riparian habitat.]

- ◆ The approaches include minimizing the number of stream crossings/placing crossings perpendicular; allowing narrow paved widths through stream corridors; using habitat sensitive bridge and culvert designs. Implementation is on-going. CWS has existing standards and technical specifications for these methods.
- ◆ Jurisdictions, together with CWS, continue to coordinate culvert work and efforts to verify the critical basins where safe fish passage is a design issue.
- ◆ Jurisdictions should confirm that their culvert list has been evaluated relative to their capital programming to determine the order of implementation.
- ◆ Jurisdictions should consider amending their codes to permit culvert replacement and associated enhancement work outright and not require additional land use or vegetative corridor mitigation review for those culvert projects and enhancement projects listed in the Healthy Streams Plan.
- ◆ Jurisdictions should review their Transportation System Plans and Comprehensive Plan Transportation Elements to ensure that block length and connectivity standards include necessary flexibility to minimize stream crossings.
- ◆ Basin should encourage Metro to amend the RTP (Section 6.4.5 Design Standards for Street Connectivity) to refer to all Goal 5 resources, as well as Title 3 water features, and to include a reference to the other stream crossing standards (e.g., CWS).

C. IMPLEMENTATION RECOMMENDATIONS FOR BASIN-WIDE APPROACHES

One element of the adopted Basin program is the development of a model Low Impact-Development (LID) ordinance for the basin, which would provide tools designed to reduce environmental impacts of new development and removing barriers to their utilization. This step includes local adoption of LID guidelines. This effort is closely tied to Clean Water Services goal of reducing Effective Impervious Area (EIA) within the Basin and a number of the suggested methods will be addressed in the update of CWS Design and Construction Standards. It is also closely related to the issues raised in the Audubon Society of Portland's 2004 *Stormwater/Pavement Impacts Reduction (SPIR) Project Report*, which made recommendations for stormwater management for new development, redevelopment and public projects.

1. Guidelines for Local Jurisdictions

Shared driveways and parking areas

- ◆ Jurisdictions should evaluate their codes for opportunities to reduce the need for paved areas by permitting shared driveways and parking areas where practicable. The Model Code suggests that when a shared driveway is provided or required as a condition of approval, the land uses adjacent to the shared driveway may have their minimum parking standards reduced in accordance with the shared parking provisions of Section 3.3.300C. However, the extent to which this area is then retained as pervious will likely be affected by the availability of incentives to reduce effective impervious area.

Increased use of pervious materials/ Use pervious paving materials

- ◆ Jurisdictions should consider amendments to remove barriers to, and encourage the use of, pervious paving materials in parking areas and low traffic private streets. For example, many existing codes require parking and street areas to be hard-paved surfaces with asphalt or concrete.
- ◆ Technical design specifications will need to be adopted Basin-wide to facilitate the use of this method. Specifications should address site suitability criteria and additional steps needed for sites that are not highly suitable in terms of soil permeability. Concerns about slope stability and impacts to adjacent properties should also be addressed. Specifications should include project monitoring to help ensure that these facilities are functioning as designed. The work completed at CWS Merlo Road Field Operations Facility could be used as the basis to establish Technical Specifications for the use of porous concrete, concrete paver blocks, and structural gravels.

Increased use of native plant/ Preservation of existing trees and maximize forest canopy

- ◆ Jurisdictions should document their existing tree cutting and mitigation standards. Avoiding the cost of mitigation can be a significant incentive for preserving existing trees. However, most tree preservation standards don't make a distinction between native species and non-native species and trees are typically not required to be replaced with native species. Jurisdictions could consider encouraging or requiring that a certain percent of mitigation trees be native species. Alternatively, as an incentive, jurisdictions could allow somewhat smaller specimens to be planted if native species are used (e.g., 2" caliper instead of 2.5").
- ◆ Jurisdictions should consider adding language to encourage the use of native plants and the preservation of existing trees throughout the Basin. The Model Code suggests the following language: "Existing non-invasive vegetation may be used in meeting landscape requirements. When existing mature trees are protected on the site (e.g., within or adjacent to parking areas) the decision making body may reduce the number of new trees required by a ratio of one (1) inch caliper of new tree(s) for every one (1) inch caliper of existing tree(s) protected." Most jurisdictions require the irrigation of landscaped areas. Installing irrigation in existing vegetated areas may not be possible without destroy the existing vegetation. Jurisdictions could consider waiving the irrigation requirement for landscaped areas that are retaining existing, native vegetation. [NOTE: CWS further augments the habitat benefits provided by vegetated stormwater facilities by requiring the incorporation of native plant species.]
- ◆ Jurisdictions may also wish to consider allowing some flexibility in their parking lot landscaping standards (the number, dimension, spacing of landscape islands and required trees) to retain individual mature trees in, or adjacent to, the parking area. For example, requiring one tree per X parking spaces *on average* be planted *or retained* to create a partial tree canopy over and around the parking area. Using an average would allow some rows of parking to have more spaces between trees and some to have fewer and this flexibility could allow for the retention of more existing trees.

Improved soil amendment

- ◆ Jurisdictions should encourage the use of soil amendments to improve the permeability of soils within landscaped areas. While stormwater management is typically not a stated benefit of landscaped areas, it could be noted as an ancillary benefit in the purpose statement. For the purposes of calculating effective impervious area, performance standards and technical specification for soil permeability should be adopted basin-wide.

Maximize street tree usage

- ◆ Jurisdictions should document their existing standards to ensure that they are requiring street trees be planted appropriately. For example, Metro's *Green Street* recommends spacing large and

very large trees 35 feet to 50 feet, respectively. Jurisdictions may also wish to document any street tree planting efforts they have engaged in.

Use multi-functional open drainage systems / vegetated stormwater management facilities / modify drainage practices

- ◆ Technical design specifications will need to be adopted Basin-wide to facilitate the use of these methods. Specifications should address site suitability criteria and additional steps needed for sites that are not highly suitable in terms of soil permeability. CWS and the Basin jurisdictions should consider developing and adopting Basin-wide standards for the construction and maintenance of stormwater management facilities, including working with building officials to identify UBC and Plumbing code issues. This may help to encourage the use of alternative systems and would ensure fair application of any stormwater mitigation credits. Specifications should include project monitoring to help ensure that these facilities are functioning as designed. The work completed at CWS Merlo Road Field Operations Facility could be used as the basis to establish Technical Specifications for vegetated conveyance swales and biofiltration.

Underground detention and/or treatment

- ◆ While underground detention and treatments facilities do not provide any habitat benefits on-site, by helping to improve water quality they do serve to benefit in-stream habitat within the watershed. Jurisdictions should address when it is appropriate to allow these facilities (e.g., in conjunction with street/road projects).

Encourage Green roofs (eco-roofs)

- ◆ Technical design specifications will need to be adopted Basin-wide to facilitate the use of this method. CWS and the Basin jurisdictions should consider developing and adopting Basin-wide standards for the construction and maintenance of green roofs, including working with building officials to identify UBC and Plumbing code issues. This may help to encourage the use of these systems and would ensure fair application of any stormwater mitigation credits. Specifications should include project monitoring to help ensure that these facilities are functioning as designed. The green roof completed at CWS Merlo Road Field Operations Facility could be used as the basis to establish Technical Specifications.

Disconnect downspouts / Use rain barrel or cistern system

- ◆ Technical design specifications will need to be adopted Basin-wide to facilitate the use of this method. Specifications should address site suitability criteria and additional steps needed for sites that are not highly suitable in terms of soil permeability. Concerns about slope stability and impacts to adjacent properties should also be addressed. If overflow from the cistern is connected to the stormwater system, then site suitability may not be an issue.

Methods Not Recommended for Basin-wide Implementation at this time

As noted in Table 1, some of methods (shown in the table with “x*”) are only recommended for consideration within or adjacent to habitat areas at this time. However, these could have potential benefits basin-wide and may be considered in the future. These are noted briefly below:

- ◆ Increased flexibility for building heights – Allowing increased building height may allow for reduction in effective impervious area if the “reserved” area is used for landscaping or other pervious uses. However, building height is often seen as a major public issue, especially with infill development.
- ◆ Reduced parking ratios - Reducing parking ratios basin-wide may allow for reduction in effective impervious area if the “reserved” area is used for landscaping or other pervious uses. However, the current parking ratios are seen as quite low and there are concerns about the impact on adjacent uses of not requiring sufficient parking on-site.
- ◆ Smaller car spaces and stall dimensions - Reducing stall dimensions or allowing more compact spaces basin-wide may allow for reduction in effective impervious area if the “reserved” area is used for landscaping or other pervious uses. However, the existing parking stall sizes are seen as quite small given the current mix of automobiles and there are concerns about the impact on adjacent uses of not requiring sufficient parking on-site.
- ◆ Reduction of non-ADA sidewalks within a site – Public policy has been emphasizing pedestrian connectivity for a number of years. Code requirements help implement that policy by requiring wide (e.g. 6’ to 8’) sidewalks and multiple connections, especially in commercial areas. Reducing these requirements basin-wide may allow for reduction in effective impervious area if the “reserved” area is used for landscaping or other pervious uses. However, there would be a significant public policy trade off.
- ◆ Minimize paving - Public policy has been emphasizing “skinny” streets for a number of years. Jurisdictions in the Basin have been successful in implementing that policy to a considerable extent. Reducing street widths further basin-wide may allow for reduction in effective impervious area if the “reserved” area is used for landscaping or other pervious uses. However, concerns have been raised by the State and local Fire Marshals.

Appendix A – Sample Delineation Methodology (based on Metro’s Model Ordinance)

Verifying boundaries of inventoried riparian habitat. Locating habitat and determining its riparian habitat class is a four-step process:

- (1) Locate the Water Feature that is the basis for identifying riparian habitat.
 - (a) Locate the top of bank of all streams, rivers, and open water within 200 feet of the property.
 - (b) Locate all flood areas within 100 feet of the property.
 - (c) Locate all wetlands within 150 feet of the property based on the Local Wetland Inventory map (if completed) and on the Metro 2002 Wetland Inventory Map (available from the Metro Data Resource Center, 600 N.E. Grand Ave., Portland, OR 97232; 503-797-1742). Identified wetlands shall be further delineated consistent with methods currently accepted by the Oregon Division of State Lands and the U.S. Army Corps of Engineers.
- (2) Identify the vegetative cover status of all areas on the property that are within 200 feet of the top of bank of streams, rivers, and open water, are wetlands or are within 150 feet of wetlands, and are flood areas and within 100 feet of flood areas.
 - (a) Vegetative cover status shall be as identified on the Metro Vegetative Cover Map
 - (b) The vegetative cover status of a property may be adjusted only if (1) the property was developed prior to the time the regional program was approved, or (2) an error was made at the time the vegetative cover status was determined. To assert the latter type of error, applicants shall submit an analysis of the vegetative cover on their property using summer 2002 aerial photographs and the definitions of the different vegetative cover types provided in Section 11 of this ordinance.
- (3) Determine whether the degree that the land slopes upward from all streams, rivers, and open water within 200 feet of the property is greater than or less than 25% (using the methodology as described in [insert a reference to the city or county code section that describes the methodology used to identify Water Quality Resource Areas pursuant to Title 3 of the Urban Growth Management Functional Plan]); and
- (4) Identify the riparian habitat classes applicable to all areas on the property using Table 6.

- Tualatin Basin Goal 5 Program Implementation Report: Issue Paper #2 (TBSC Draft)
- Page 15

Table 6: Method for Locating Boundaries of Class I and II Riparian Areas.

Distance in feet from Water Feature	Development/Vegetation Status ¹			
	Developed areas not providing vegetative cover	Low structure vegetation or open soils	Woody vegetation (shrub and scattered forest canopy)	Forest Canopy (closed to open forest canopy)
Surface Streams				
0-50	Class II	Class I	Class I	Class I
50-100		Class II ²	Class I	Class I
100-150		Class II ² if slope>25%	Class II ² if slope>25%	Class II ²
150-200		Class II ² if slope>25%	Class II ² if slope>25%	Class II ² if slope>25%
Wetlands (Wetland feature itself is a Class I Riparian Area)				
0-100		Class II ²	Class I	Class I
100-150				Class II ²
Flood Areas (Undeveloped portion of flood area is a Class I Riparian Area)				
0-100			Class II ²	Class II ²

¹ The vegetative cover type assigned to any particular area was based on two factors: the type of vegetation observed in aerial photographs and the size of the overall contiguous area of vegetative cover to which a particular piece of vegetation belonged. As an example of how the categories were assigned, in order to qualify as “forest canopy” the forested area had to be part of a larger patch of forest of at least one acre in size.

² Areas that have been identified as habitats of concern, as designated on the Metro Habitats of Concern Map (on file in the Metro Council office), shall be treated as Class I riparian habitat areas in all cases, subject to the provision of additional information that establishes that they do not meet the criteria used to identify habitats of concern as described in Metro’s Technical Report for Fish and Wildlife. Examples of habitats of concern include: Oregon white oak woodlands, bottomland hardwood forests, wetlands, native grasslands, riverine islands or deltas, and important wildlife migration corridors.

Verifying boundaries of inventoried upland habitat. Upland habitat was identified based on the existence of contiguous patches of forest canopy, with limited canopy openings. The “forest canopy” designation is made based on analysis of aerial photographs, as part of determining the vegetative cover status of land within the region. Upland habitat shall be as identified on the HCA map unless corrected as provided in this subsection.

1. Except as provided below, vegetative cover status shall be as identified on the Metro Vegetative Cover Map used to inventory habitat at the time the area was brought within

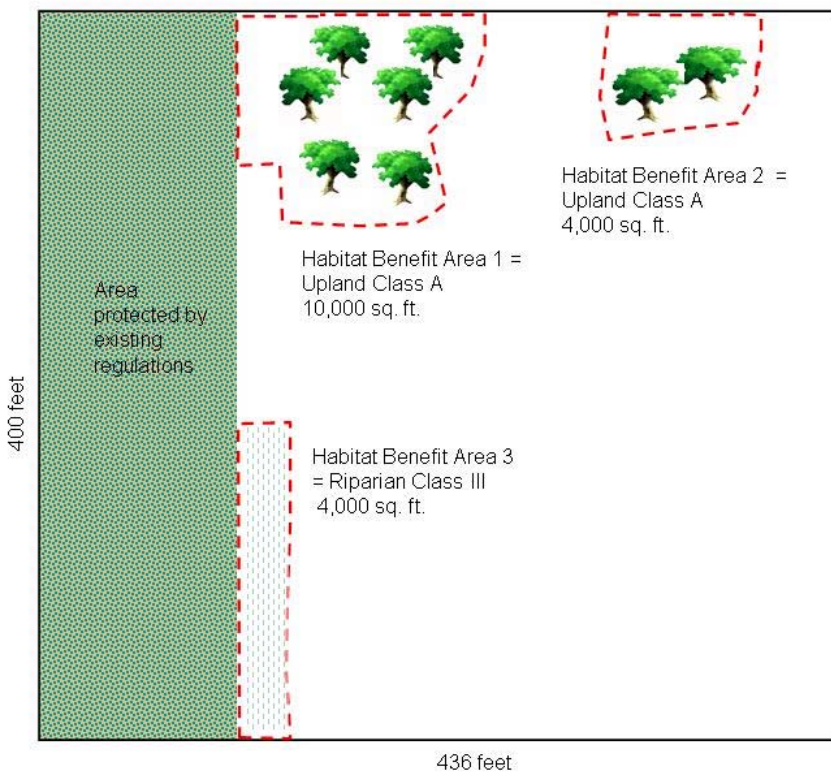
the urban growth boundary (available from the Metro Data Resource Center, 600 N.E. Grand Ave., Portland, OR 97232; 503-797-1742).

2. The only allowed corrections to the vegetative cover status of a property are as follows:
 - a. To correct errors made when the vegetative status of an area was determined based on analysis of the aerial photographs used to inventory the habitat at the time the area was brought within the urban growth boundary. For example, an area may have been identified as “forest canopy” when it can be shown that such area has less than 60% canopy crown closure, and therefore should not have been identified as “forest canopy.” The perimeter of an area delineated as “forest canopy” on the Metro Vegetative Cover Map may be adjusted to more precisely indicate the dripline of the trees within the canopied area provided that no areas providing greater than 60% canopy crown closure are de-classified from the “forest canopy” designation. To assert such errors, applicants shall submit an analysis of the vegetative cover on their property using the aerial photographs that were used to inventory the habitat at the time the area was brought within the urban growth boundary and the definitions of the different vegetative cover types provided in Section 11 of this ordinance; and
 - b. To remove tree orchards and Christmas tree farms from inventoried habitat; provided, however, that Christmas tree farms where the trees were planted prior to 1975 and have not been harvested for sale as Christmas trees shall not be removed from the habitat inventory.
3. If the vegetative cover status of any area identified as upland habitat is corrected pursuant to subsection 9(G)(4)(b)(ii)(A) to change the status of an area originally identified as “forest canopy,” then such area shall not be considered upland habitat unless it remains part of a forest canopy opening less than one acre in area completely surrounding by an area of contiguous forest canopy.

- Tualatin Basin Goal 5 Program Implementation Report: Issue Paper #2 (TBSC Draft)
- Page 17

Appendix B: Example of Criteria for Habitat Benefit Area

[NOTE: As defined, the Habitat Benefit Area would be in addition to any areas required for natural resource protection by existing regulations.]



EXAMPLE 1:

Site = 174,240 sq. ft. (4 ac.)

Area protected by existing regulations (CWS, DSL/COE) = 40,000 sq. ft.

Minimum Habitat Benefit Area to qualify = 17,424 sq. ft.

Habitat Benefit Area proposed = 18,000 sq. ft.